Well-Being of Farm Operator Households Versus All U.S. Households: Income and Wealth Measures, 1996-2006

First, we define who is a farmer and identify the data sources for our reporting. We then report on patterns of well-being using traditional measures: income, wealth, and joint income-wealth.

Definitions and Data Sources

To identify our target population—households of principal operators of family farms—we start with USDA's definition of a farm ("any place from which $1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the year"). Because we are interested in the households of the principal farm operators, we restrict our analysis to "family farms," those in which majority ownership of the farm business is held by the operator and relatives of the operator. Most farms (96 percent in 2006) are family owned and operated. For family farms, we identify the principal operator of the operation, and collect information for that individual's household. About 10 percent of family farms have other operators who live in separate households; these households are not included in the population.[1]

In this section, we use the full family-farm sample from USDA's Agricultural Resource Management Survey (ARMS), a joint effort by ERS and the USDA National Agricultural Statistics Service, to describe the demographics and economics of farm households. (See Appendix A for more information about data sources.) ARMS is a major source of information for reporting official USDA statistics on farm income and farm household income and wealth.[2] The calculation of household income in ARMS includes: a detailed calculation of farm income, based on farm output, revenue, expenses, and depreciation; the allocation of farm income among stakeholders, including the principal operator, and the nonfarm income of the principal operator's household from earned and unearned sources.[3] ARMS also reports farm and nonfarm household wealth and household expenditure data. For all U.S. households, we rely on the Current Population Survey for income data and the triennial Survey of Consumer Finance for wealth data.

Tables 1 and 2 report income- and wealth-based measures of household well-being for principal farm operator and all U.S. households for 1996-2006.

Income, Wealth, and Joint Income-Wealth Measures

Following Slesnick (2001), we start with the three standard well-being measures, all based on household money income for a given year: the level of income at the midpoint of the population (median household income); the dispersion, or inequality, of income across households (the Gini coefficient[4]); and the share of households below a minimum threshold of income adequacy (the Census poverty rate).

In the 1930s, the per capita income for farm household members was about half that of nonfarm households (USDA, 1984).[5] In the 1970s, median farm household income approached that of all U.S. households—in some years,

[1]For multiple-operator farms, a principal operator is identified during the annual process of collecting economic information from farm businesses. About 40 percent of farms have more than one operator; however, for three-quarters of the farms with multiple operators, the farm is operated by a husband-wife team, so that both operators are part of the same "principal operator" household on which we focus.

[2]See ERS Briefing Rooms on Farm Income and Costs (http://www.ers.usda.gov/Briefing/FarmIncome/), Farm Household Economics and Well-Being (http://www.ers.usda.gov/Briefing/WellBeing/), and ARMS (http://www.ers.usda.gov/Briefing/ARMS/) for more information.

[3]Other net self-employment income is elicited directly from the respondent, as in the Current Population Survey. Though the CPS survey manual indicates that self-employment income is to be reported net of depreciation, this guidance does not appear on the survey form in CPS. Checks comparing farm self-employment income between CPS and ARMS suggest that the typical respondent does not deduct depreciation, resulting in lower estimates of farm self-employment income in ARMS than in CPS.

[4]The Gini coefficient is a ratio with values between 0 and 1: 0 corresponds to perfect equality (everyone having exactly the same income) and 1 corresponds to perfect inequality (where one person has all the income, while everyone else has zero income). Consequently, a low Gini coefficient indicates a more equal income or wealth distribution, while a high Gini coefficient indicates a more unequal distribution.

[5]Data for calculating farm household income are not available from ARMS or its precursor prior to 1986. In order to make historical comparisons between disposable personal incomes of farm and nonfarm residents, we use an alternate series for 1934-1983. For more information, see http://www.ers.usda.gov/Briefing/WellBeing/glossary.htm#disposable.

Table 1

Income measures of well-being for farm operator and all U.S. households, 1996-2006 (in 2006 dollars)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Farm primary operator households:											
Households (1,000)	1,717	2,012	1,872	2,148	2,121	2,094	2,115	2,085	2,061	2,034	2,022
Total household income ($)											
Median	35,149	42,588	49,635	52,983	50,954	51,026	52,105	52,283	57,268	55,822	56,022
Standard error	1,667	1,915	2,191	2,074	1,633	1,781	1,159	1,938	2,395	1,587	1,043
10th percentile	5,745	3,006	7,702	9,860	8,809	7,715	7,482	8,375	10,865	10,438	9,859
20th percentile	15,291	15,547	19,103	21,030	19,814	21,677	21,172	20,760	23,218	23,165	22,400
80th percentile	83,668	87,897	96,695	100,791	97,649	98,508	102,876	99,179	114,872	114,105	108,713
90th percentile	133,148	130,028	153,214	153,688	151,321	140,884	151,410	145,950	181,948	178,559	167,570
	Ratio										
80:20	5.5	5.7	5.1	4.8	4.9	4.5	4.9	4.8	4.9	4.9	4.8
90:10	23.2	43.3	19.9	15.6	17.2	18.3	20.2	17.4	16.7	17.1	16.0
	Index										
Gini	0.647	0.624	0.590	0.582	0.587	0.591	0.589	0.587	0.578	0.583	0.582
Standard error	0.0188	0.0136	0.0124	0.0130	0.0102	0.0134	0.0162	0.0093	0.0140	0.0052	0.0092
	Percent										
Poverty rate per person	20.4	na	na	14.3	na	na	16.0	15.1	13.3	na	14.4
Negative household income	6.0	7.5	5.8	5.2	6.0	6.5	6.4	5.8	5.0	5.4	5.9
Farm income share	13.3	11.8	10.2	9.6	4.6	8.3	5.3	11.5	17.5	18.1	11.4
Farm + other self-employment income share	26	24	22	27	na	na	18	23	30	na	25
All U.S. households:											
Households (1,000)	101,018	102,528	103,874	106,434	108,209	109,294	111,278	112,000	113,343	114,384	116,011
Total household income ($)											
Median	45,416	46,350	48,034	49,244	49,163	48,091	47,530	47,488	47,323	47,845	48,201
Standard error	229	214	284	230	155	147	156	206	209	160	207
10th percentile	11,401	11,542	11,982	12,519	12,390	12,170	11,902	11,550	11,641	11,658	12,000
20th percentile	18,897	19,289	19,908	20,735	20,981	20,465	20,079	19,715	19,732	19,807	20,035
80th percentile	87,032	89,556	92,647	95,875	95,733	95,094	94,160	95,229	93,934	94,712	97,032
90th percentile	117,787	122,325	125,135	130,417	131,132	129,405	127,890	129,578	129,014	130,224	133,000
	Ratio										
80:20	4.6	4.6	4.7	4.6	4.6	4.7	4.7	4.8	4.8	4.8	4.8
90:10	10.3	10.6	10.4	10.4	10.6	10.6	10.8	11.2	11.1	11.2	11.1
	Index										
Gini	0.455	0.459	0.456	0.458	0.462	0.466	0.462	0.464	0.466	0.469	0.470
Standard error	0.0043	0.0043	0.0042	0.0041	0.0030	0.0030	0.0029	0.0028	0.0029	0.0028	0.0028
	Percent										
Poverty rate per person	13.7	13.3	12.7	11.9	11.3	11.7	12.1	12.5	12.7	12.6	12.3
Negative household income	0.011	0.116	0.135	0.130	0.097	0.124	0.129	0.131	0.129	0.104	0.058
Self-employment income share	4.9	5.4	5.4	5.2	5.1	4.5	4.7	4.9	4.7	5.2	5.3

Income is in 2006 CPI-U-RS adjusted dollars, for households current as of March the following year. na = Estimate does not comply with ERS disclosure limitation practices, is not available, or is not applicable. Sources: USDA, Economic Research Service using Agricultural Resource Management Survey, 1996-2006 (all survey versions) for farm households, and using Current Population Survey Report P60-223, U.S. Census Bureau, 2007, for all U.S. households (median and mean income, Table A-1; Gini of income, Table A-3.)

Table 2

Wealth measures of well-being for farm operator and all U.S. households, 1995-2006 (in 2006 dollars)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Farm primary operator households:												
Median ($)		283,006	na	337,133	435,098	375,174	386,321	376,474	455,853	487,715	517,467	548,193
Standard error		25,215		11,449	7,971	15,383	12,400	13,077	17,072	20,348	13,122	11,159
10th percentile		74,092	na	88,940	129,346	102,187	92,951	97,571	118,008	148,731	142,269	167,549
20th percentile		149,326	na	174,956	237,968	193,724	191,933	198,548	241,037	266,800	264,448	307,932
80th percentile		590,570	na	647,789	799,004	712,052	730,290	716,503	868,634	907,271	971,913	1,020,621
90th percentile		1,116,774	na	1,277,634	1,471,502	1,254,751	1,303,669	1,303,156	1,576,273	1,616,857	1,732,255	1,775,872
		Ratio										
75:25		4.0		3.7	3.4	3.7	3.8	3.6	3.6	3.4	3.7	3.3
90:10		15.1		14.4	11.4	12.3	14.0	13.4	13.4	10.9	12.2	10.6
		Index										
Gini		0.549	na	0.559	0.505	0.521	0.565	0.528	0.532	0.517	0.538	0.529
Standard error		0.0097		0.0101	0.0070	0.0138	0.0339	0.0094	0.0133	0.0129	0.0089	0.0052
All U.S. households:												
Median ($)**	75,573	79,985		88,809			97,882			99,376		
Standard error	2,562			3,416			3,522			4,590		
10th percentile	107			53			107			213		
25th percentile	13,129			12,275			14,517			14,197		
75th percentile	211,348			258,527			322,038			350,645		
90th percentile	500,616			611,520			834,929			887,660		
		Ratio										
75:25	16.1			21.1			22.2			24.7		
90:10	4,690			11,458			7,822			4,158		
		Index										
Gini	0.784			0.794			0.803			0.805		
Standard error	0.0043			0.0051			0.0041			0.0049		

na = Estimate does not comply with ERS disclosure limitation practices, is not available, or is not applicable.
** 1996 all U.S. wealth median estimate is interpolated from 1995 and 1998 estimates.
Sources: USDA, Economic Research Service using Agricultural Resource Management Survey, 1996-2006 (all survey versions), for farm households, and Survey of Consumer Finances (Kennickell, Jan 2006), for all U.S. households.

it was above the median for all U.S. households, and in other years, it was below it. Since 1998, median income for farm operator households has exceeded median income of all U.S. households by 3 to 21 percent (table 1).

Income levels are more disparate among farm households, as reflected in consistently higher Gini coefficients, than among all U.S. households. However, the Gini coefficients are converging: the Gini for all U.S. households rose from 0.455 in 1996 to 0.470 in 2006, implying widening income inequality, whereas the Gini for farm households fell from 0.647 to 0.582. Two other measures of dispersion, the ratio of income at the 80th and 20th percentiles and at the 90th and 10th percentiles, focus specifically on the distance between the upper and lower tails of the distribution. For the 80:20 ratio, farm and all U.S. households do converge in 2006 to the same value; for the 90:10 ratio, the gap is shrinking (table 1). Further, farm households have consistently higher income-based poverty rates (14.4 percent for farm households versus 12.3 percent for U.S. households in 2006) and larger shares with negative household income each year (5-8 percent of farm house-

holds, compared with 0.1 percent for all U.S. households across the period) (table 1).

The greater income variability among farm households from one year to another can be attributed to the greater share of self-employment income among farm households. Self-employment income is more likely to be negative in a given year due to the variability of business results, as well as to variability in how much production is allocated to inventory rather than sales in a given year and in depreciation expenses from recent capital expenditures. For all U.S. households, the share of income from self-employment averages about 5 percent over 1996-2006 (table 1). For farm households, the share of income from self-employment ranges from 18 to 30 percent, with the farm income share ranging from 5 to 18 percent. (Many of the other self-employment activities of farm households are related to farming, though not part of the farm business.)

The economic strategies of farm households are diverse. The average shares of household income from farming increase with the farm's sales class. Many households in the upper and lower ends of the income distribution are from the small set of households operating farms with annual sales over $100,000. Though these farms accounted for 16 percent of all farms in 2006, they produced 89 percent of total farm sales.

Farm households clearly dominate all U.S. households in wealth-based measures of well-being. In 2004 (the most recent year for which wealth information is available for all U.S. households), median wealth of farm households was about five times the estimated median wealth of all U.S. households (table 2.) A large share of household wealth in the farm sector is in farmland, which increased substantially in value relative to other assets over 1995-2006.

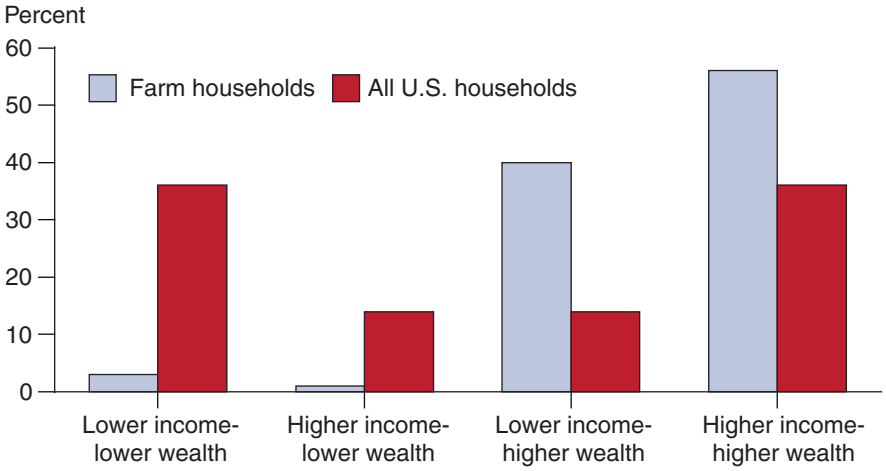
In contrast to all U.S. households, where wealth is very concentrated at the top end of the distribution, wealth is more evenly distributed among farm households: the Gini coefficients in 2004 were 0.517 for farm households and 0.805 for all U.S. households.

Recognizing the variability of income across years and the importance of wealth to sustain consumption amid temporary declines in income, Mishra et al. (2002) introduced a four-quadrant well-being indicator. It separates households into low- and high-income and low- and high-wealth, using the U.S. household medians for money income and wealth as the dividing lines. The combination of low income and low wealth is interpreted as an indication of "economic disadvantage." Using 2000 data, 6 percent of the U.S. farm population was in the low-income/low-wealth category. As the well-being of farm households (both income and wealth) improved over the next 6 years, the share of disadvantaged households fell to 3 percent in 2006.

Figure 1 compares the four-quadrant distributions of farm and all U.S. households for 2004, the last year for which household wealth data are available for all U.S. households. The shares with low income are similar (43 percent of farm households, 50 percent of all U.S. households). The striking difference is in wealth, where 96 percent of farm households had high wealth (compared to 50 percent of all U.S. households.)[6] For all U.S. households, income and wealth are positively correlated: more than two-thirds of the low-income group had low wealth and nearly two-thirds of the high-income group had high wealth. The pattern is significantly different for low-income farm households: virtually all of them had high wealth, suggesting that for many, their current-year income is temporarily low.

Figure 1

Joint household income and wealth distribution, for farm and all U.S. households, relative to U.S. household medians, 2004



"Lower" and "higher" income and wealth are defined relative to the U.S. household medians: in 2004 dollars, $45,817 for income and $91,700 for wealth.

Source: USDA, Economic Research Service using Agricultural Resource Management Survey, 2004; Current Population Survey, 2004, Bureau of Labor Statistics, U.S. Department of Labor; Survey of Consumer Finances, 2004, Federal Reserve Board.

[6]The 96 percent of farm households with high wealth are split into two groups, with 56 percent having income higher than the U.S. median and 40 percent having income lower than the U.S. median. On average, the low-income/high-wealth group tended to incur farm losses during the year, and some portion of their off-farm income served to offset these losses.